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Washing, bleaching or cleaning agent powders - contg. encapsulated alkali metal percarbonate with high morphology index for solubility and improved stability during storage

Patent Assignee: DEGUSSA AG (DEGS)

Inventor: BERTSCH-FRANK B; BERTSCHFRANK B; BEWERSDORF M; KLASSEN C; LIESER T
; SCHUETTE R

Patent Family (6 patents, 27 countries)

Patent			Application			
Number	Kind	Date	Number	Kind	Date	Update
DE 4439069	A1	19960509	DE 4439069	A	19941102	199625 B
WO 1996014388	A1	19960517	WO 1995EP4102	A	19951019	199625 E
FI 199701859	A	19970430	WO 1995EP4102	A	19951019	199729 E
			FI 19971859	A	19970430	
EP 789749	A1	19970820	EP 1995936523	A	19951019	199738 E
			WO 1995EP4102	A	19951019	
JP 10508625	W	19980825	WO 1995EP4102	A	19951019	199844 E
			JP 1996514988	A	19951019	
KR 1997707266	A	19971201	WO 1995EP4102	A	19951019	199847 E
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Priority Applications (no., kind, date): DE 4439069 A 19941102

Patent Details

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WO 1996014388	A1	EN			
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Regional Designated States,Original: AT BE CH DE DK ES FR GB GR IE IT LU					
MC NL PT SE					
FI 199701859	A	FI			PCT Application WO 1995EP4102
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Based on OPI patent WO 1996014388					
Regional Designated States,Original: AT BE DE ES FR GB IT NL SE					
JP 10508625	W	JA	24		PCT Application WO 1995EP4102
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KR 1997707266	A	KO			PCT Application WO 1995EP4102
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Alerting Abstract DE A1

A particulate washing, bleaching or cleaning agent compsn. contains encapsulated alkali metal percarbonate and standard washing, bleaching or cleaning agent components, esp. silicate builders. The active oxygen content (Oa*) is at least 70% following 8 weeks storage at 30 deg. C and 80% relative humidity (calculated w.r.t. the active oxygen content of the same compsn. contg. sodium perborate monohydrate instead of encapsulated alkali metal percarbonate), and takes less than 10 mins. for 95% of it to dissolve in water at 15 deg. C and 2 g/l concn. The morphology index (MI) of the encapsulated percarbonate is more than 0.03, where MI is defined in formula (I); CV (coefft. of variance) = sigma/d; d (mean particle size) is defined in formula (a); di = mean particle size of particle size fraction i (arithmetic mean of two screens); wi = wt. proportion for particle size

fraction i ; and sigma (standard deviation) is defined in formula (b). The fractions are obtd. by using screens with holes ranging from 0.1-0.8 mm at ca. 0.1 mm intervals, and a 1.0 mm screen.

Also claimed are (i) the prepn. of the compsns., and (ii) the encapsulated alkali metal percarbonate used in the compsns.

ADVANTAGE - The storage stability during storage of the active oxygen component is improved without making the washing, cleaning or bleaching step longer.

Title Terms /Index Terms/Additional Words: WASHING; BLEACH; CLEAN; AGENT; POWDER; CONTAIN; ENCAPSULATE; ALKALI; METAL; PERCARBONATE; HIGH; MORPHOLOGY; INDEX; SOLUBLE; IMPROVE; STABILISED; STORAGE

Class Codes

International Classification (Main): C11D, C11D-003/39
(Additional/Secondary): C01B-015/10, C01B-015/16, C11D-003/395

File Segment: CPI

DWPI Class: D25; E12

Manual Codes (CPI/A-M): D11-B01B; E31-E

Chemical Indexing

Derwent Registry Numbers: 1151-U; 1543-U; 1680-U; 1744-U

Chemical Fragment Codes (M3):

01 M903 M904 A100 A111 A119 A940 C106 C108 C408 C530 C730 C801 C802 C803
C805 C807 M411 M782 Q273 Q507 Q620 R036 9625-A1001-M
02 M903 M904 A100 A200 A940 B114 B701 B712 B720 B831 C108 C802 C803 C804
C805 C807 M411 M782 Q273 Q507 Q620 R036 9625-A1002-M
03 M903 M904 A100 A940 C108 C316 C540 C730 C801 C802 C803 C804 C805 M411
M782 Q273 Q507 Q620 R036 R90036-M 135437-M
04 M903 M904 A200 A940 C108 C316 C540 C730 C801 C802 C803 C804 C805 M411
M782 Q273 Q507 Q620 R036 R90037-M 135438-M
05 M903 M904 M910 A212 A940 C108 C316 C540 C730 C801 C802 C803 C804 C805
M411 M782 Q273 Q507 Q620 R036 R01680-M 100007-M 100007-U
06 M903 M904 M910 A111 A940 C101 C106 C108 C530 C730 C801 C802 C805 C807
M411 M782 Q273 Q507 Q620 R036 R01151-M 107317-M 107317-U
07 M903 M904 M910 A111 A940 B114 B701 B712 B720 B831 C108 C802 C803 C804
C805 C807 M411 M782 Q273 Q507 Q620 R036 R01543-M 132965-U 133247-U
1358-M 1358-U 187560-U
08 M903 M904 M910 A111 A940 C108 C316 C540 C730 C801 C802 C803 C804 C805
M411 M782 Q273 Q507 Q620 R036 R01744-M 107367-M 107367-U 130190-U

Specific Compound Numbers: R90036-M; R90037-M; R01680-M; R01151-M; R01543-M
; R01744-M

Generic (Markush) Compound Numbers: 9625-A1001-M; 9625-A1002-M

Derwent Chemistry Resource Numbers: (Linked) 135437-M; 135438-M; 100007-M;
100007-U; 107317-M; 107317-U; 132965-U; 133247-U; 1358-M; 1358-U;
187560-U; 107367-M; 107367-U; 130190-U; 100007-CMP; 100007-USE;
107317-CMP; 107317-USE; 107367-CMP; 107367-USE; 130190-USE; 132965-USE;
133247-USE; 135437-CMP; 135438-CMP; 1358-CMP; 1358-USE; 187560-USE
(Unlinked) 100007-U; 107317-U; 107367-U; 130190-U; 132965-U; 133247-U;
1358-U; 187560-U

Key Word Indexing

1 100007-USE 107317-USE 107367-USE 130190-USE 132965-USE 133247-USE
135437-CMP 135438-CMP 1358-USE 187560-USE

Original Publication Data by Authority

Germany

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Publication Date: 19960509

****Percarbonathaltige Wasch-, Bleich- und Reinigungsmittelzusammensetzung****

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Lieser, Thomas, Dr., 63457 Hanau, DE

Schuetzte, Ruediger, Dr., 63755 Alzenau, DE

Language: DE (12 pages, 1 drawings)

Application: DE 4439069 A 19941102 (Local application)

Original IPC: C11D-3/39(A)

Current IPC: C11D-3/39(A)

Claim:

- * 1. Teilchenformige Wasch-, Bleich- oder Reinigungsmittelzusammensetzung, enthaltend umhulltes Alkalimetallpercarbonat und ubliche Wasch-, Bleich- oder Reinigungsmittelbestandteile, insbesondere silikatische Builder, mit einem Oa*-Erhalt der Zusammensetzung nach 8-wochiger Lagerung bei 30(deg)C und 80% relativer Feuchte von mindestens 70%, wobei der Oa*-Erhalt das in Prozent ausgedruckte Verhaltnis des Oa-Erhalts der Zusammensetzung zum Oa-Erhalt einer in gleicher Weise gelagerten Oa-gleichen analogen Zusammensetzung mit Natriumperborat-monohydrat anstelle des umhullten Natriumpercarbonats ist, einer Losezeit des umhullten Alkalimetallpercarbonats von weniger als 10 Minuten, gemessen als Losezeit fur 95%ige Auflosung in Wasser bei 15(deg)C und einer Konzentration von 2 g/l Wasser, und einem Morphologieindex MI des umhullten Alkalimetallpercarbonats von grosser 0,03, wobei MI durch die Formel $MI = 0,0448 \cdot CV + 3,61 \cdot 10^{(sup)6} \cdot d^{-3}$, der Variationskoeffizient CV durch die Formel $CV = \sigma/d$, die mittlere Korngrosse d durch die Formel $d = \text{Sigmadi.wi}/100$ und die Standardabweichung sigma durch die Formel [MAT] definiert sind, worin di fur die mittlere Partikelgrosse (arithmetisches Mittel zwischen zwei Sieben) der Korngrossenfraktion i und wi fur den Gewichtsanteil dieser Fraktion stehen und die Fraktionen aus der Siebung unter Verwendung von Sieben im etwa 0,1 mm-Abstand von 0,1 bis 0,8 mm und eines 1,0 mm Siebes erhalten werden.

EPO

Publication No. EP 789749 A1 (Update 199738 E)

Publication Date: 19970820

****PERCARBONATHALTIGE WASCH-, BLEICH- UND REINIGUNGSMITTELZUSAMMENSETZUNG
PERCARBONATE-CONTAINING WASHING, BLEACHING AND CLEANING AGENT COMPOSITION
COMPOSITIONS D'AGENTS DE LAVAGE, DE BLANCHIMENT ET DE NETTOYAGE,
CONTENANT DU PERCARBONATE****

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Inventor: BEWERSDORF, Martin, Kasseler Strasse 22, D-63571 Gelnhausen, DE

BERTSCH-FRANK, Birgit, Scheffelstrasse 4c, D-79613 Rheinfelden, DE

KLASEN, Claas-Juergen, Am Silberberg 19c, D-63579 Freigericht, DE

LIESER, Thomas, Dennendreef 5, B-2920 Heide Kalmthout, BE
 SCHUTTE, Ruediger, Im Goldenen Ring 11, D-63755 Alzenau, DE
 Language: DE (0 drawings)
 Application: EP 1995936523 A 19951019 (Local application)
 WO 1995EP4102 A 19951019 (PCT Application)
 Priority: DE 4439069 A 19941102
 Related Publication: WO 1996014388 A (Based on OPI patent)
 Designated States: (Regional Original) AT BE DE ES FR GB IT NL SE
 Original IPC: C11D-3/39(A) C01B-15/10(B)
 Current IPC: C11D-3/39(A) C01B-15/10(B)
 Original Abstract: The invention concerns washing, bleaching and cleaning agent compositions containing coated alkali metal percarbonate, in particular sodium percarbonate, and conventional components of such compositions, including in particular silicate-like builders. Compositions according to the invention, which have good stability during storage yet dissolve rapidly and thus render extension of the washing, bleaching or cleaning period unnecessary, contain an alkali metal percarbonate with an Oa^* content in the composition of at least 70 %, a dissolution time of the alkali metal percarbonate in water of less than 10 minutes, determined under specific test conditions in each case, and a morphology index MI greater than 0.03, in particular greater than 0.04, in which: $MI = 0.0448 \cdot CV + 3.61 \cdot 106 \cdot d^{-3}$; $CV = (\sigma/d)$; $(\sigma) = (\text{radical}) \Sigma (d_i - d)^2 \cdot w_i / 100$ and $d = \Sigma w_i d_i / 100$.
 Claim: A particulate washing, bleaching or cleaning agent compsn. contains encapsulated alkali metal percarbonate and standard washing, bleaching or cleaning agent components, esp. silicate builders. The active oxygen content (Oa^*) is at least 70% following 8 weeks storage at 30 deg. C and 80% relative humidity (calculated w.r.t. the active oxygen content of the same compsn. contg. sodium perborate monohydrate instead of encapsulated alkali metal percarbonate), and takes less than 10 mins. for 95% of it to dissolve in water at 15 deg. C and 2 g/l concn. The morphology index (MI) of the encapsulated percarbonate is more than 0.03, where MI is defined in formula $MI = 0.0448 \cdot CV + 3.61 \cdot 106 \cdot d^{-3}$ (I); CV (coefft. of variance) = σ/d ; d (mean particle size) is defined in formula $d = \Sigma w_i d_i / 100$ (a); d_i = mean particle size of particle size fraction i (arithmetic mean of two screens); w_i = wt. proportion for particle size fraction i; and σ (standard deviation) is defined in formula $\sigma = \sqrt{\Sigma (d_i - d)^2 \cdot w_i / 100}$ (b). The fractions are obtd. by using screens with holes ranging from 0.1-0.8 mm at ca. 0.1 mm intervals, and a 1.0 mm screen.
 Also claimed are (i) the prepn. of the compsns., and (ii) the encapsulated alkali metal percarbonate used in the compsns.

Finland

Publication No. FI 199701859 A (Update 199729 E)
 Publication Date: 19970430
 Assignee: DEGUSSA AG (DEGS)
 Inventor: BEWERSDORF M
 BERTSCH-FRANK B
 KLASSEN C
 LIESER T
 SCHUETTE R
 Language: FI
 Application: WO 1995EP4102 A 19951019 (PCT Application)
 FI 19971859 A 19970430 (Local application)

Priority: DE 4439069 A 19941102
 Original IPC: C11D-0/00(A)
 Current IPC: C11D-0/00(A)

Japan

Publication No. JP 10508625 W (Update 199844 E)
 Publication Date: 19980825
 Assignee: DEGUSSA AG (DEGS)
 Inventor: BEWERSDORF M
 BERTSCH-FRANK B
 KLASEN C
 LIESER T
 SCHUETTE R
 Language: JA (24 pages)
 Application: WO 1995EP4102 A 19951019 (PCT Application)
 JP 1996514988 A 19951019 (Local application)
 Priority: DE 4439069 A 19941102
 Related Publication: WO 1996014388 A (Based on OPI patent)
 Original IPC: C11D-3/39(A) C01B-15/16(B) C11D-3/395(B)
 Current IPC: C11D-3/39(A) C01B-15/16(B) C11D-3/395(B)

Korea

Publication No. KR 1997707266 A (Update 199847 E)
 Publication Date: 19971201
 Assignee: DEGUSSA AG (DEGS)
 Language: KO
 Application: WO 1995EP4102 A 19951019 (PCT Application)
 KR 1997702910 A 19970502 (Local application)
 Priority: DE 4439069 A 19941102
 Related Publication: WO 1996014388 A (Based on OPI patent)
 Original IPC: C11D-3/39(A)
 Current IPC: C11D-3/39(A)

WIPO

Publication No. WO 1996014388 A1 (Update 199625 E)
 Publication Date: 19960517
 **PERCARBONATE-CONTAINING WASHING, BLEACHING AND CLEANING AGENT
 COMPOSITION**
 Assignee: DEGUSSA AKTIENGESELLSCHAFT, DE (DEGS)
 Inventor: BEWERSDORF, MARTIN, DE
 BERTSCHFRANK B
 KLASEN, CLAAS-JUERGEN, DE
 LIESER, THOMAS, DE
 SCHUETTE, RUEDIGER, DE
 Language: EN
 Application: WO 1995EP4102 A 19951019 (Local application)
 Priority: DE 4439069 A 19941102
 Designated States: (National Original) CA CN CZ FI HU JP KR PL RU SK US
 (Regional Original) AT BE CH DE DK ES FR GB GR IE IT LU MC NL PT SE
 Original IPC: C11D-3/39(A) C01B-15/10(B)
 Current IPC: C11D-3/39(A) C01B-15/10(B)
 Original Abstract: Die Erfindung betrifft Wasch-, Bleich- und
 Reinigungsmittelzusammensetzungen, enthaltend umhuelktes
 Alkalimetallpercarbonat, insbesondere Natriumpercarbonat, und uebliche
 Bestandteile derartiger Zusammensetzungen, darunter insbesondere
 silikatische Builder. Erfindungsgemaesse Zusammensetzungen, welche
 einerseits eine hohe Lagerstabilitaet aufweisen, sich andererseits aber

rasch loesen und damit eine Verlaengerung der Wasch-, Bleich- und Reinigungsdauer eruebrigen, enthalten ein Alkalimetallpercarbonat mit einem Oa*-Erhalt in der Zusammensetzung von mindestens 70 %, einer Loesezeit des Alkalimetallpercarbonats in Wasser von weniger als 10 Minuten, jeweils bestimmt unter definierten Testbedingungen, und ein Morphologieindex MI groesser 0,03, insbesondere groesser 0,04, wobei gilt: $MI = 0,0448 \cdot CV + 3,61 \cdot 10^6 \cdot d^{-3}$; $CV = (\sigma)/d$; $(\sigma) = (\text{radical})\Sigma(di-d)^2 \cdot wi/100$ und $d = \Sigma madi \cdot wi/100$.

The invention concerns washing, bleaching and cleaning agent compositions containing coated alkali metal percarbonate, in particular sodium percarbonate, and conventional components of such compositions, including in particular silicate-like builders. Compositions according to the invention, which have good stability during storage yet dissolve rapidly and thus render extension of the washing, bleaching or cleaning period unnecessary, contain an alkali metal percarbonate with an Oa* content in the composition of at least 70 %, a dissolution time of the alkali metal percarbonate in water of less than 10 minutes, determined under specific test conditions in each case, and a morphology index MI greater than 0.03, in particular greater than 0.04, in which: $MI = 0.0448 \cdot CV + 3.61 \cdot 10^6 \cdot d^{-3}$; $CV = (\sigma)/d$; $(\sigma) = (\text{radical})\Sigma(di-d)^2 \cdot wi/100$ and $d = \Sigma madi \cdot wi/100$.